

## Key Indicators of Progress – Research and Development Goals

Action: The staff recommends that the council approve the 2002-06 research and development indicators and goals for public universities.

The council staff has worked with the public universities to establish indicators and goals for research and development. These indicators are under question 5 – Are Kentucky's communities and economy benefiting?

Recognizing the link between R&D and the new economy, the staff worked closely with Bill Brundage, commissioner for the New Economy, to ensure that the R&D indicators and goals for the University of Kentucky and the University of Louisville and those in the statewide strategic plan for the new economy are one and the same.

Extramural research and development expenditures at UK and UofL have increased from \$122 to \$173 million since 1997. While progress has been made, it is essential for these expenditures to increase even more in order to add significant value to the state's economy. The Office of the New Economy has set goals of \$500 million by 2010 and \$1 billion by 2020. In order to target this growth in areas that will be of greatest benefit to Kentucky's economy, the Office of the New Economy has identified five priority areas for research and development: (1) Human Health and Development, (2) Biosciences, (3) Information Technologies and Communication, (4) Materials Science and Advanced Manufacturing, and (5) Environmental and Energy Technologies.

For the University of Kentucky and the University of Louisville, the council staff proposes the following four indicators:

1. Extramural R&D expenditures (federal, state and local, industry, and other – as defined by the National Science Foundation).
2. Federal R&D expenditures (as defined by NSF).
3. Endowments in the five new economy research priority areas.
4. Research and development expenditures from endowments and gifts in the new economy research priority areas.

The proposed goals for extramural and federal research and development expenditures are shown on attachment 1, page 119. The combined 2002 – 2006 goals for extramural R&D expenditures for UK and UofL chart an ambitious course toward the goals of \$500 million by 2010 and \$1 billion by 2020.

The staff is still working with UK and UofL to establish the criteria that will be used to identify endowments in the new economy research priority areas and the expenditures associated with these endowments and gifts. Focusing key indicators on the research priority areas is an especially important link to the statewide plan for the new economy. For instance, the information technology priority area is crucial to regional economic development in virtually all areas across the country. A second priority area, biotechnology, is a natural candidate for high growth in Kentucky because of our strength in the academic program areas of pharmacy, medicine, and agriculture. The baseline data and goals for these two indicators will be presented to the council in February 2002.

When the council staff presented the key indicators in March, we thought that there might be goals for two other indicators for the two research universities—licenses that yield income and business start-ups or incubated businesses. In looking at national data, however, we realized that state and university data fluctuate significantly from year to year. (For instance, the start-ups in 1996, 1997, and 1998 for the University of Washington—one of UK’s benchmarks—were 3, 25, and 8.) We think now that we should track these data but not establish goals. Instead, the staff proposes to add the third and fourth indicators listed above, which tie the activities of the universities directly to the core areas of the new economy.

For the comprehensive universities, the R&D indicator is “extramural research and public service expenditures per full-time faculty.” The goals that were negotiated with each institution are shown on attachment 2, page 120. The restricted research and public service expenditures are reported annually as part of the federal Integrated Postsecondary Education Data System (IPEDS) – collected and reported by the National Center for Education Statistics (NCES). The projected growth from 2000 to 2006 ranges from 11 percent at Kentucky State University to 243 percent at Eastern Kentucky University.

Staff preparation by Patrick Kelly

**Research and Development Goals for UK and UofL**  
**Extramural and Federal Research and Development Expenditures**  
(In \$ Thousands)

|                                 | Actual    |           | Goals     |           |           |           |           |           |             |
|---------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------------|
|                                 | 1999      | 2000      | 2002      | 2003      | 2004      | 2005      | 2006      | 2010      | 2020        |
| <b>University of Kentucky</b>   |           |           |           |           |           |           |           |           |             |
| Federal                         | \$66,184  | \$73,858  | \$87,172  | \$100,486 | \$113,801 | \$127,115 | \$140,429 | \$207,000 | \$414,000   |
| Total Extramural                | \$120,446 | \$142,803 | \$158,523 | \$174,242 | \$189,962 | \$205,682 | \$221,402 | \$300,000 | \$600,000   |
| <b>University of Louisville</b> |           |           |           |           |           |           |           |           |             |
| Federal                         | \$15,536  | \$17,713  | \$35,832  | \$42,998  | \$51,598  | \$61,918  | \$74,301  | \$154,071 | \$304,000   |
| Total Extramural                | \$28,892  | \$30,615  | \$46,080  | \$55,296  | \$66,355  | \$79,626  | \$95,551  | \$200,000 | \$400,000   |
| <b>Total</b>                    |           |           |           |           |           |           |           |           |             |
| Federal                         | \$81,720  | \$91,571  | \$123,004 | \$143,484 | \$165,399 | \$189,033 | \$214,730 | \$361,071 | \$718,000   |
| Total Extramural                | \$149,338 | \$173,418 | \$204,603 | \$229,538 | \$256,317 | \$285,308 | \$316,953 | \$500,000 | \$1,000,000 |

\*Extramural expenditures include federal, state, industry, and other extramural sources.

Source: National Science Foundation

Extramural Research and Public Services Expenditures per Full-Time Faculty  
Comprehensive Universities  
**Three-Year Average**

|                              | 1996-97 to 1998-99 | Goals    |          |          |          |          | Percent<br>Change |
|------------------------------|--------------------|----------|----------|----------|----------|----------|-------------------|
|                              | Actual             | 2002     | 2003     | 2004     | 2005     | 2006     |                   |
| Eastern Kentucky University  | \$14,828           | \$39,474 | \$46,035 | \$48,465 | \$49,937 | \$50,929 | 243%              |
| Kentucky State University    | \$49,473           | \$51,000 | \$52,000 | \$53,000 | \$54,000 | \$55,000 | 11%               |
| Morehead State University    | \$12,281           | \$13,423 | \$14,175 | \$14,699 | \$15,390 | \$16,036 | 31%               |
| Murray State University      | \$4,431            | \$5,147  | \$5,185  | \$5,220  | \$5,256  | \$5,270  | 19%               |
| Northern Kentucky University | \$3,474            | \$4,035  | \$4,276  | \$4,518  | \$4,759  | \$5,000  | 44%               |
| Western Kentucky University  | \$18,930           | \$31,008 | \$31,783 | \$32,558 | \$33,333 | \$34,108 | 80%               |

Source: IPEDS Finance and Fall Staff Surveys